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RESEARCH ARTICLE

ASSOCIATION BETWEEN ENVIRONMENTAL FACTORS AND PHYSICAL ACTIVITY PARTICIPATION AMONG RESIDENTS OF IFE CENTRAL LOCAL GOVERNMENT AREA

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ABSTRACT

Several factors have been identified in the decline of regular participation in physical activity (PA). However, there is dearth of data on the influence of environmental factors on physical activity participation in Nigeria. The objective of this study was to investigate the influence of environmental factor on physical activity among adults in a semi- urban community in Nigeria. This cross-sectional study recruited 387 respondents whose age ranged between 18-70 years old from Ile- Ife, Ife Central Local Government Area, Osun State, Nigeria. Multistage sampling technique was used to recruit respondents. Socio demographic data were assessed. Physical activity level and perception of environmental factors as related to physical activity participation were assessed using the International Physical Activity Questionnaire and Neighborhood and Environmental Walkability Scale respectively. There were more male 226 (58.4%) than female 161 (41.6%) and more than half of the respondent 206 (53.2%) were employed with a mean age of 34.03 ± 11.9 years. Majority of the respondents 194 (55.1%) reported a low physical activity level. More than half of the respondents 216 (55.8%) had sufficient physical activity recommended level of 150m/wk. There was no significant different between physical activity level of male and female (p>0.05). Pleasant neighborhood surroundings and safety from traffic was significantly associated with regular participation in physical activity (p<0.01). Furthermore, the safety from crime in the community was significantly associated with increased physical activity participation (P< 0.05). Surveyed adult residents of Ile- Ife in Ife Central Local Government Area reported a low level of physical activity participation. Perceived environmental factors including pleasant neighborhood, safety from traffic and crime were significantly associated with physical activity participation.

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INTRODUCTION

Physical activity is a well-established element of the public health agenda that has received increasing attention in recent years (Malina and Little, 2008). This has led to a global phenomenon of physical inactivity in both developed and developing countries (WHO, 2003). Physical inactivity is a modifiable risk factor for cardiovascular disease and a variety of other chronic diseases, including diabetes mellitus, colon and breast cancer, obesity, hypertension, bone and joint diseases, as well as depression (WHO, 2003). Physical inactivity is a modifiable risk factor for cardiovascular disease and a variety of other chronic diseases, including diabetes mellitus, colon and breast cancer, obesity, hypertension, bone and joint diseases, as well as depression (WHO, 2003). Physical activity seems especially important for those in their young adulthood, as relationships have been found between respiratory fitness in young adulthood and the subsequent development of cardiovascular disease risk factors (Carnethon *et al*., 2003). Multiple reviews have linked environmental variables like proximity to public and private recreational facilities, presence of sidewalks, and neighborhood aesthetics to recreational physical activity and walking (Owenetal, 2004; Handy *et al*, 2004;Gebel, Bauman Petticrew, 2007). Walkable neighborhood's characterized by high residential density, proximity between homes and destinations, connected street networks, and pedestrian facilities such as sidewalks have been related to walking and cycling for transportation (Owen *et al*, 2004; Handy *et al*, 2004; Heath 2006; Gebel *et al*, 2007). Neighborhood safety is an important aspect of the neighborhood social environment with potential influence on physical activity behaviors. Safety is often measured as a simple undifferentiated construct, but for physical activity two aspect of safety are particularly important: traffic and crime. Studies on perceived crime and traffic safety are barriers to physical activity have produced inconsistent results (Humpel *et al*., 2002; Duncan *et al*., 2005). For example, in a review by Handy *et al*, (2008), measures of personal safety were related

to walking in the expected direction in six studies but were related in the null or unexpected direction in ten other studies. Association between aspects of safety and physical activity have also been reported to differ between subgroups, such as men and women (Deboudeaudhuij *et al*, 2003; Foster *et al*, 2004; Bengoechea *et al*, 2005; Bennett *et al*, 2007),African American and White adults (Hooker *et al*, 2005), older and younger adults (Shigematsu *et al*, 2009) and overweight and obese men (Liao 2011).

MATERIALS AND METHODS

RESPONDENTS: This study involved 378 adult residents of Ife Central Local Government Area, aged 16-69 years consisting of: 226 males and 161 females.

SITE OF THE STUDY: The study was conducted in Ife Central Local Government, Ile- Ife, Osun State. The houses have a minimum of five people residing in each house. The type of buildings was detached/semi-detached, single family, houses with spaces/gardens and is considered to be a low walkable area.

INCLUSION CRITERIA

- Participants must be adults residing in Ife Central Local Government Area.
- Participants must have been residing in Ile-Ife for a minimum of two years.
- Participants must be apparently healthy

EXCLUSION CRITERIA

- Adolescents residing in Ife Central Local Government Area.
- Disability that would not enable participation in physical activity.

SAMPLE AND SAMPLING TECHNIQUE: Multistage sampling techniques will be used for this study. They were recruited from their homes. Random sampling techniques will be used to select houses on each road with adults consenting within each household.

SAMPLE SIZE DETERMINATION: Using the formula for determining sample size from a population that is greater than 10000. Sample formula n = Z 2 pq/d 2 (Araoye *et al.,* 2004). Where n= the desired sample size (when population is greater than 10000) Sample formula n = Z 2 pq/d 2 (Araoye *et al* 2004). Where n= the desired sample size (when the population is greater than 10000). Z= the standard normal deviate, usually set at 1.96(or more simply 2.0) which correspond to the 95 percent confidence level P= the proportion in the target population estimated to have a particular characteristics q= 1.0 – pd= degree of accuracy desired, usually set at 0.05 or occasionally at 0.02. The calculated sample size for this study was n = (1.96) 2 (0.5) (0.5) (0.05) 2 = 384.2

INSTRUMENTS

International Physical Activity Questionnaire (IPAQ). The International Physical Activity Questionnaire (IPAQ) comprises a set of 4 Long (5 activity domains ask independently) and Short (generic items) versions for use by either telephone or self-administered method are available. The purpose of the questionnaires is to provide common instruments that can be used to obtain internationally comparable data on health-related physical activity. The short self- administered version of the International Physical Activity Questionnaire (IPAQ) which includes 7 items was used for this study. The questionnaire estimated vigorous and moderate- intensity activities and walking in terms of frequency (days/week.) and duration (min/day) in the last 7 days.

Neighborhood and Environment Walkable Scale: An adapted self- administered version of the neighborhood and environmental walkable scale (NEWS) was used to assess perception of environmental factors of neighborhood surroundings, The neighbor and Environmental walkability scale has nine sections of which three were adapted for the purpose of this study: neighborhood surrounding, safety from traffic and safety from crime. For this study, three items were used to assess the environmental factors that affect physical activity: safety from crime, safety from traffic and neighborhood surroundings. The questionnaire had earlier been used for similar study (Oyeyemi *et al*, 2012). It has been found to be reliable to access environmental correlations of physical activity.

Socio- demographic characteristics: Information on age, gender, marital status and occupation were also contained in the questionnaire.

PROCEDURE

Houses on each road of the sites of study were randomly chosen with adults consenting within a household based on convenience. For each selected house, adult households were approached for study of interest and eligibility. Ethical approvals were sought and obtained from the Institute of Public Health Obafemi Awolowo University Ile-Ife. The questionnaires were distributed by hand and were collected upon successful completion.

RESULTS AND DISCUSSION

DATA ANALYSIS

Data were analyzed using descriptive and inferential statistics. Descriptive analysis for all variable and chi square test was used to find the association between physical activity level and the perceived environmental factors. The Independent t-test was used to compare physical activity levels of males and females. Significant value (p value) was set at $P > 0.05$.

RESULTS

Socio Demographic Characteristics of Participants. A total of 387 residents of Ife Central Local Government participated in the study. Thirteen participants did not complete their questionnaire, leaving 387 participants who properly completed the study. Male participants were 226(58.4%) while female participants were161(41.6%). The mean age was 34.03(±11.09 yrs.). The majority of the participants were married 211(54.5%) and employed 206 (53.2%). Details of the socio demographic characteristics of the participants are shown in Table1.

Grouping of participants according to their physical activity level: Table 2 shows the grouping of participants by their levels of physical activity; low, moderate and high. The majority of 194(50.1%) of the participants achieved low level of physical activity while 131(33.9%) and 62(16%) were of moderate and high levels of physical activity respectively.

Perceived neighborhood safety and self-reported walking: Table 3 shows the percentage of participants who met up to the requirements of self-reported walking (150m/wk). 55.8% of the participants met the requirement while 44.2% were not sufficient with self-reported walking.

Table 1. Social demographic of the respondents

GENDER	NUMBER(N)	PERCENTAGE (%)
Male	226	58.4
Female	161	41.6

AGE GROUP (IN YEARS)	NUMBER(N)	PERCENTAGE (%)
15-24	96	24.8
25-34	111	28.7
35-44	98	25.3
45-54	64	16.5
55-68	18	4.7

MARITAL STATUS	NUMBER(N)	PERCENTAGE (%)
Married	176	45. 5
Unmarried	211	54. 5

EMPLOYMENT STATUS	NUMBER(N)	PERCENTAGE (%)
Student	104	26.9
Employed	206	53.2
Unemployed	77	19.9

Table 2. Physical activity level of respondents

PHYSICAL ACTIVITY LEVEL	NUMBER(N)	PERCENTAGE (%)
Low	194	50.1
Moderate	131	33.9
High	62	16
Total	387	100

Table 3. Self-reported walking among respondents

SELF REPORTED WALKING	NUMBER(N)	PERCENTAGE (%)
Sufficient	216	55.8
Not sufficient	171	44. 2

Environmental characteristics and physical activity levels Percentage and chi square test were used to show the physical activity levels and association of environmental factors and physical activity levels as shown in Table 4, Table 5, Table 6.

Physical activity and perception of neighborhood surroundings (e.g. trees in the neighborhood, attractive natural sites in the neighborhood, neighborhood is generally free from litter etc.): Participants that perceived their environment as having pleasant neighborhood surroundings were more likely to be involved in physical activity than those who do not perceive their environment as having nice neighborhood surroundings. There was a significant association between the variables of neighborhood surroundings and physical activity level (P<0.01).

Physical activity and safety from traffic: Participants that perceived less traffic on their street that make it difficult or unpleasant to walk in their neighborhood were more likely to be involved in physical activity. There was a significant association between physical activity level and much traffic in the neighborhood (P< 0.01). However, speed of traffic seemed to be a likely obstacle to physical activity as there was no significant association between physical activity and posted speed limit in the neighborhood and most nearby streets (P>0.222).

Physical activity and safety from crime: Participants that perceived their neighborhood as being safe from crime and having low crime rate which makes it safe for walks during the day and night were more likely to be involved in physical activity level as a significant association was found between physical activity and this variable (P< 0.01).

Table 5. Perception safety from traffic among male and female. Traffic along the street I live in makes it.

Difficult to walk in my neighborhood

VARIABLE	MALE N (%)	FEMALE N (%)	CHI SQUARE VALUE	P VALUE
Agree	70(31)	45(28)	70.147	0.01*
Not Agree	156(69)	116(72)		

Unpleasant to walk

VARIABLE	MALE N (%)	FEMALE N (%)	CHI SQUARE VALUE	P VALUE
Agree	70(31)	36(32.4)	82.199	0.01*
Not Agree	156(69)	125(77.6)		
VARIABLE	MALE N (%)	FEMALE N (%)	CHI SQUARE VALUE	P VALUE
Agree	170(75.2)	120(74.5)	173.176	0.01*
Not Agree	56(24.8)	41(25.5)		

The speed of traffic on most nearby streets is usually slow

VARIABLE	MALE N (%)	FEMALE N (%)	CHI SQUARE VALUE	P VALUE
Agree	166(73.5)	122(75.8)	171.336	0.01*
Not Agree	60(26.5)	39(24.2)		

Drivers exceed speed Limit while driving

VARIABLE	MALE N (%)	FEMALE N (%)	CHI SQUARE VALUE	P VALUE
Agree	106(46.9)	77(47.8)	4.390	0.222
Not Agree	120(53.1)	84(52.2)		

Crossroads help walkers' cross busy streets

VARIABLE	MALE N (%)	FEMALE N (%)	CHI SQUARE VALUE	P VALUE
Agree	106(46.9)	77(47.8)	4.390	0.222
Not Agree	120(53.1)	84(52.2)		

The crosswalks in my neighborhood help Walkers feel safe crossing busy street

VARIABLE	MALE N (%)	FEMALE N (%)	CHI SQUARE VALUE	P VALUE
Agree	106(46.9)	77(47.8)	4.390	0.222
Not Agree	120(53.1)	84(52.2)		

Table 6: Perception safety from crime among male and female respondents

Neighborhood streets well-lit at night

VARIABLE	MALE N (%)	FEMALE N (%)	CHI SQUARE VALUE	P VALUE
Agree	64(28.3)	39(24.2)	132.907	0.01*
Not Agree	162(71.7)	122(75.8)		

Walkers and bikers on the street can be seen by people in their homes

VARIABLE	MALE N (%)	FEMALE N (%)	CHI SQUARE VALUE	P VALUE
Agree	25(11.1)	35(21.7)	257.207	0.01*
Not Agree	201(88.9)	126(78.3)		

I can see and speak to other people when walking in my neighborhood

VARIABLE	MALE N (%)	FEMALE N (%)	CHI SQUARE VALUE	P VALUE
Agree	186(82.3)	139(86.3)	192.256	0.01*
Not Agree	40(17.7)	22(13.7)		

High crime rate in my neighborhood

VARIABLE	MALE N (%)	FEMALE N (%)	CHI SQUARE VALUE	P VALUE
Agree	64(11.9)	46(28.6)	107.295	0.01*
Not Agree	162(88.1)	115(71.4)		

High crime rate makes it unsafe to go on walks during the day

VARIABLE	MALE N (%)	FEMALE N (%)	CHI SQUARE VALUE	P VALUE
Agree	26(11.5)	10(6.20)	419.315	0.01*
Not Agree	200(88.5)	151(93.8)		

High crime rate makes it unsafe to go on walks at night

VARIABLE	MALE N (%)	FEMALE N (%)	CHI SQUARE VALUE	P VALUE
Agree	105(46.5)	66(41.0)	45.610	0.01*
Not Agree	121(53.5)	95(59.0)		

Comparison of physical activity levels between male and female participants There was no significant difference between physical activity level of between male and female participants (P>0.083). Table 7 reports the comparison.

VAR.	MEAN	T.TEST	STAND.DEV	P VALUE
Male	885.6637	1.822	895.29325	0.083
Female	726.9317		768.40923	

DISCUSSION

The objectives of this study were to assess the level of physical activity, the environmental correlations associated with physical activity participation among residents of Ife Central local government and to determine the relationship between physical environment variables and physical activity level.

The results of the study showed that there were significant correlations between physical activity level and environmental correlations. All the six variables of neighborhood surroundings were associated as expected with self-reported health related physical activity which suggests that favorable neighborhood surroundings support physical activity. A previous study from Sallis *et al* (2009) conducted a survey in 11 countries using the same self-report environmental variables and the international physical activity questionnaire, allowing pooled data. Five of seven environmental variables were significantly related to meeting physical activity guidelines, ranging from access to low-cost recreation facilities to sidewalks on most streets. Results suggest neighborhoods built to support physical activity have a strong potential to contribute to increased physical activity. Designing neighborhoods to support physical activity can now be seen as a public health issue. Most variableofsafety from traffic were associated with physical activity level, posted speed limit yielded non-significant association in the unexpected direction. For safety from crime, all variables were associated with physical activity. Also consistent with the study of Oyeyemi *et al*, 2012 which was a cross-sectional study, accelerometer-based physical activity, self-reported walking, perceived crime and safety from traffic were measured in 219 Nigerian adults. Sufficient moderate to vigorous physical activity was related to more perception of safety from traffic to walking and more safety from crime at night, but with less perception of safety from crime during the day to walk. It was observed that there was no significant difference in the physical activity levels of male and female participants. This observation is not consistent with previous studies that suggested significant difference in the physical activity levels of male and females.

Previous studies suggested that males are more active than females in leisure-time, although not all were consistent (Monteiro *et al*, 2003; Turrell 2000; Gomes *et al*, 2001; Martinez-Gonzalez *et al*, 2001; Steptoe *et al*, 2002). More recent data showed that, when all domains of activity practice are considered, no gender differences are observed (Hallal *et al*, 2003).

CONCLUSION

Based on the findings of this study, it was concluded that a greater percentage of the participants were physically inactive. Environmental correlations had significant association with the physical activity of residents of Ife central local government, Ile-Ife.

RECOMMENDATIONS

It is recommended that the authority of the Ife central local government should consider formulating policies and effective intervention strategies for the promotion of physical activity and discouraging sedentary lifestyle**.**

REFERENCES

Addy, C. *et al*., (2004). Association of social and physical environmental supports for physical activity and walking behaviors. American Journal of Public Health, 94:440-443.

Atkinson, J. S. B. C. K. B. J., (2005). The association of neighborhood design and recreational environments with physical activity. Amj of health promotion,19:4.

Bangsbo, J., (1996). Physiological factors associated with efficacy in high intensity exercise. Sport medicine (Auckland, N.Z.), (Doi: 10.2165/00007256-199622050-00003.PMID 8923647), 22(5):299-305.

Bengoechea, G., Spence, J. C. & McGannon, K. R., (2005). Gender differences in perceived environmental correlates of physical activity. Int J BehavNutr Phys Act,2:12.

Bennet, G. G. *et al*., (2007). Safe to walk? Neighborhood safety and physical activity among public housing residents. PLos Med, 4(10):306.

Bey, L. & Hamilton, M., (2003). Suppression of skeletal muscle lipoprotein lipase activity during physical inactivity; a molecular reason to maintain daily low intensity activity. J of Physiology,551(2):673-682.

Bonsignore, M., Morici, A. & Santoro, (2002). Circulating hematopoietic progenitor cells in runners. J of App Physiology, 93(5):1691-1697.

WHO, (2009). Global Health risks: mortality and burden of disease attributable to selected major risks, Geneva. Switzerland: World Health Organization.

Wilmore, J. & Knuttgen, H., (2003). Aerobic Exercise and Endurance Improving Fitness for Health Benefits. The physician and sports medicine, 31(5):45.

Wislett, U., Ellingsen, O. & Kemi, O., (2009). High intensity interval training to maximize cardiac benefit of exercise training? Exercise and Sport Sciences Review, 37(3):139-146.

Yamashita, N. *et al*., (1999). Exercise provides direct biphasic cardio protection via manganese superoxide dismutase activation. Journal of Experimental Medicine,189(11):1699-1706.

Zhou, Y. T., Grayburn, P. & Karim, A., (2000). Lipotoxic heart disease in obese rats: implications for human obesity. Proceeding of the national Academy of Sciences of the United States of America,97(4):1784-1789.

Zlot, A. I. & Schmid, T. L., (2005). Relationship among Community Characteristics and walking and bicycling for transportation or recreation. Am J of HealthPromotion,19:4.

Rennie, K. L., Johnson, L. & Jebb, S. A., (2005). Behavioral determinants of obesity. Best practice and research: Clinical Endocrinology and Metabolism, 19(3):343-358.

Richter, E. A. *et al*., (1988). Skeletal muscle glucose uptake during dynamic exercise in humans: Role of muscle mass. the Am J of phys, PMID 3284382. 254(5 pt 1): E555-61.

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